What is claimed is:

1. A vehicle auxiliary electric-power-supplying system comprising:

an electric power inverter for converting a first type of dc power received through an overhead wire to a second type of dc power, and supplying the second type of dc power to a dc load;

an electric power supplier for converting the first type of dc power received through the overhead wire to a third type of dc power;

a power-outputting unit, connected to both the electric power inverter and the electric power supplier, for outputting either the second type of dc power or the third type of dc power; and

a controller for receiving power from the power-outputting unit, and controlling the electric power inverter.

2. A vehicle auxiliary electric-power-supplying system as recited in claim 1, wherein to the controller the third type of dc power is supplied through the power-outputting unit when the system starts to operate, and the second type of dc power is supplied through the power-outputting unit after the second type of dc power has been outputted from the electric power inverter.

3. A vehicle auxiliary electric-power-supplying system as recited in claim 2, wherein the third type of dc power is supplied to the controller through the power-outputting unit if the voltage of the second type of dc power being supplied becomes lower than the voltage of the third type of dc power being supplied.

4. A vehicle auxiliary electric-power-supplying system as recited in claim 3, wherein the power-outputting unit is constituted of a butt-jointed diode composed of a first diode to which the second type of dc power is supplied and a second diode to which the third type of dc power is supplied, so as to supply output of either power to the controller.

5. A vehicle auxiliary electric-power-supplying system as recited in claim 4, further comprising:

a first protector, connected between the overhead wire and the electric power inverter, for protecting the electric power inverter against the first type of dc power supplied through the overhead wire.

6. A vehicle auxiliary electric-power-supplying system as recited in claim 5, wherein the first type of dc power is supplied to the electric power supplier through the first protector.

7. A vehicle auxiliary electric-power-supplying system as recited in claim 6, wherein

the electric power inverter comprises a second protector for protecting, according to control from the controller, the inverter internally against the first type of dc power.

8. A vehicle auxiliary electric-power-supplying system as recited in any one of claims 1- 7, wherein the electric power inverter converts the first type of

dc power into a fourth type of ac power, and supplies the fourth type of ac power to an ac load.